

## SILICON RECTIFIER DIODES



Silicon rectifier diodes in DO-4 metal envelopes, intended for use in power rectifier applications. The series consists of the following types:

Normal polarity (cathode to stud): BYX38-300 to 1200.

Reverse polarity (anode to stud): BYX38-300R to 1200R.

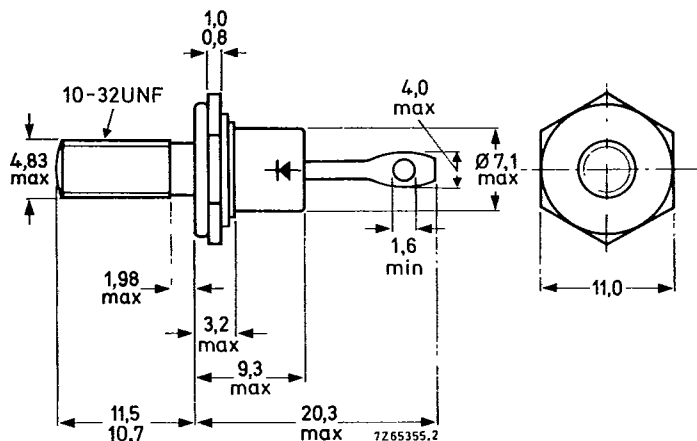
## QUICK REFERENCE DATA

|                                     |             | BYX38-300(R) | 600(R) | 1200(R) |
|-------------------------------------|-------------|--------------|--------|---------|
| Repetitive peak reverse voltage     | $V_{RRM}$   | max. 300     | 600    | 1200 V  |
| Average forward current             | $I_{F(AV)}$ | max. 6       | 6      | A       |
| Non-repetitive peak forward current | $I_{FSM}$   | max. 50      | 50     | A       |

## MECHANICAL DATA

Dimensions in mm

## DO-4



Net mass: 6 g

Diameter of clearance hole: max. 5,2 mm

Accessories supplied on request:  
see ACCESSORIES section

Torque on nut: min. 0,9 Nm  
(9 kg cm)  
max. 1,7 Nm  
(17 kg cm)

Supplied with device: 1 nut, 1 lock washer

Nut dimensions across the flats: 9,5 mm

The mark shown applies to normal polarity types.



Products approved to CECC 50 009-019 available on request.

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**RATINGS** Limiting values in accordance with the Absolute Maximum System (IEC 134)

**Voltages**

|                                                        |           | <u>BYX38-300(R)</u> | <u>600(R)</u> | <u>1200(R)</u> |   |
|--------------------------------------------------------|-----------|---------------------|---------------|----------------|---|
| Non-repetitive peak reverse voltage ( $t \leq 10$ ms)  | $V_{RSM}$ | max. 300            | 600           | 1200           | V |
| Repetitive peak reverse voltage ( $\delta \leq 0,01$ ) | $V_{RRM}$ | max. 300            | 600           | 1200           | V |
| Crest working reverse voltage                          | $V_{RWM}$ | max. 200            | 400           | 800            | V |
| Continuous reverse voltage                             | $V_R$     | max. 200            | 400           | 800            | V |

**Currents**

|                                                                                                                               |            |      |    |                  |
|-------------------------------------------------------------------------------------------------------------------------------|------------|------|----|------------------|
| Average forward current (averaged over any 20 ms period) up to $T_{mb} = 110$ °C                                              | $I_F(AV)$  | max. | 6  | A                |
| at $T_{mb} = 125$ °C                                                                                                          | $I_F(AV)$  | max. | 4  | A                |
| R.M.S. forward current                                                                                                        | $I_F(RMS)$ | max. | 10 | A                |
| Repetitive peak forward current                                                                                               | $I_{FRM}$  | max. | 50 | A                |
| Non-repetitive peak forward current ( $t = 10$ ms; half sine-wave) $T_j = 150$ °C prior to surge: with reapplied $V_{RWMmax}$ | $I_{FSM}$  | max. | 50 | A                |
| $I^2t$ for fusing ( $t = 10$ ms)                                                                                              | $I^2t$     | max. | 13 | A <sup>2</sup> s |

**Temperatures**

|                      |           |             |    |
|----------------------|-----------|-------------|----|
| Storage temperature  | $T_{stg}$ | -55 to +150 | °C |
| Junction temperature | $T_j$     | max. 150    | °C |

**THERMAL RESISTANCE**

|                                                       |               |   |     |      |
|-------------------------------------------------------|---------------|---|-----|------|
| From junction to ambient in free air                  | $R_{th j-a}$  | = | 50  | °C/W |
| From junction to mounting base                        | $R_{th j-mb}$ | = | 4   | °C/W |
| From mounting base to heatsink with heatsink compound | $R_{th mb-h}$ | = | 0,5 | °C/W |
| without heatsink compound                             | $R_{th mb-h}$ | = | 0,6 | °C/W |
| Transient thermal impedance; $t = 1$ ms               | $Z_{th j-mb}$ | = | 0,3 | °C/W |

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CHARACTERISTICS

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Forward voltage

$$I_F = 20 \text{ A}; T_j = 25 \text{ }^{\circ}\text{C}$$

$$V_F < 1,7 \text{ V } ^1)$$

Reverse current

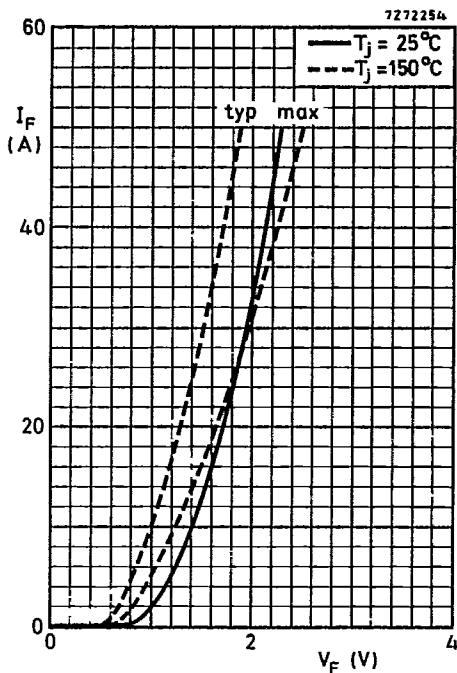
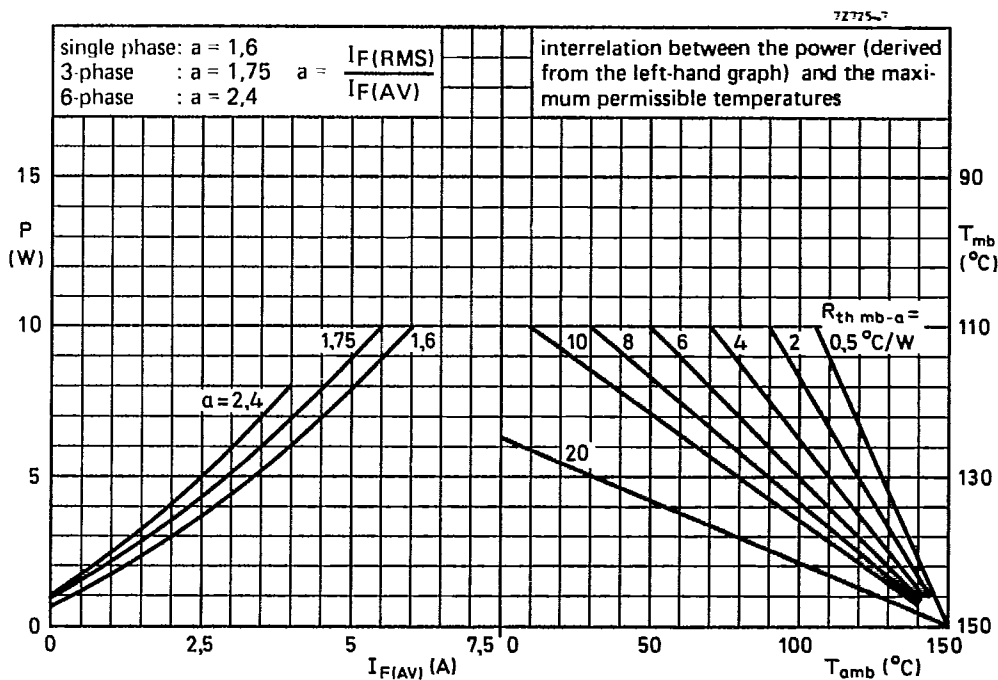
$$V_R = V_{RWMmax}; T_j = 125 \text{ }^{\circ}\text{C}$$

$$I_R < 200 \text{ } \mu\text{A}$$

**OPERATING NOTES**

1. The top connector should neither be bent nor twisted; it should be soldered into the circuit so that there is no strain on it.  
During soldering the heat conduction to the junction should be kept to a minimum.
2. Where there is a possibility that transients, due to the energy stored in the transformer, will exceed the maximum permissible non-repetitive peak reverse voltage, see General Section for information on damping circuits.

<sup>1)</sup> Measured under pulse conductions to avoid excessive dissipation.



T-01-17

BYX38

SERIES

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56E D

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